

REMARKS

Claims 3-5, 7-9, 11-13, 21-33, 42 and 45-60 remain pending in the application. Claims 3-5, 7-9, 11-13, 21-33, 42, 45-50 and 52-60 amended, and claims 1, 2, 6, 10, 14-20, 34-41, 43 and 44 are cancelled. Reconsideration of the rejection and allowance of the pending application in view of the following remarks are respectfully requested.

As an initial matter, Applicants note that the Examiner indicates on the Office Action Summary form (PTOL-326) that a copy of a certified copy of the priority document has not been received from the International Bureau. However, the Notice of Acceptance dated May 26, 2006 indicates that the priority document has been received, and a copy of a certified copy of the priority document (having a mail room date of 02/08/06) is available on PAIR's Image File Wrapper of the application. Thus, Applicants request that the Examiner confirm that the copy of the certified copy of the priority document has been received.

As another matter, on page 4 of the Office Action, under the heading "Specification", the Examiner indicates that "[t]here is no summary indicated". Applicants respectfully request clarification on this matter, since a "Summary of the Invention" begins on page 4 of Applicants' specification.

In the Office Action, the Examiner objects to claims 3-14, asserting that the word "recognizing" is spelled incorrectly. Applicants have corrected the spelling of "recognizing", and request that the Examiner withdraw the objection.

In the Office Action, the Examiner rejects claims 1-3, 8 and 12 under 35 U.S.C. §103(a) as being unpatentable over Parsa et al. (U.S. Patent No. 6,480,525) in view of Brandli et al. (U.S. Patent Application Publication No. 2003/0072325), and rejects claims

4-6, 9, 10, 13 and 14 under 35 U.S.C. §103(a) as being unpatentable over Parsa et al. in view of Brandli et al. and Nelson et al. (U.S. Patent Application Publication No. 2001/0033579).

Applicants' independent claim 3, as currently amended, recites a method of detecting a collision between two transmission in a radio frequency network of devices. The method includes, inter alia, transmitting a collision signal that is itself perceived by one or more other devices as a collision.

Applicants' independent claim 8, as currently amended, recites a radio communication system which includes, inter alia, a third device that transmits a collision signal to other devices which itself will be perceived by the other devices as a collision signal.

Applicants' independent claim 12, as currently amended, recites a transceiver for use in a radio communication system. The transceiver transmits a collision signal which itself will be perceived by other transceivers as a collision signal.

Parsa et al. discloses a method of collision resolution in a CDMA system. Brandli et al. discloses a method for collision management of a wireless detection system.

In the Office Action, the Examiner acknowledges that neither Parsa et al. nor Brandli et al. teach a collision detection method which includes transmitting a collision signal that is itself perceived by one or more other devices as a collision. See page 11 of the Office Action. However, the Examiner asserts that this feature is taught by Nelson et al. Applicants respectfully disagree.

Nelson et al. discloses a process for monitoring a channel in which a base station 20 monitors an access channel 51 for message transmission, such as access request

messages, and determines whether a collision occurs in a time slot. See, e.g., paragraph [0112] of Nelson et al. Nelson et al. discloses that if a collision occurs, the base station 20 transmits a feedback message indicating that a collision was detected. See, e.g., paragraph [0113] of Nelson et al.

On page 11 of the Office Action, the Examiner asserts that, since the feedback message indicates that a collision was detected, a remote station which receives the feedback message knows that there is a collision. Applicants respectfully disagree.

Applicants respectfully submit that the feedback message itself is not perceived by the remote station as a collision. Rather, the feedback message merely causes the remote station to perceive an access request message as a collision.

Thus, Applicants respectfully submit that the combined teachings of Parsa et al., Brandli et al. and Nelson et al. do not disclose or suggest a method of detecting a collision between two transmission in a radio frequency network of devices which includes transmitting a collision signal that is itself perceived by one or more other devices as a collision.

Applicants submit that the combined teachings of Parsa et al., Brandli et al. and Nelson et al. also fail to disclose or suggest a radio communication system which includes a third device that transmits a collision signal to other devices which itself will be perceived by the other devices as a collision signal, as recited in claim 8, or a transceiver for use in a radio communication system which transmits a collision signal which itself will be perceived by other transceivers as a collision signal, as recited in claim 12.

For at least these reasons, Applicants submit that the inventions recited in Applicants' independent claims 3, 8 and 12 are not obvious in view of Parsa et al., Brandli et al. and Nelson et al., and request that the Examiner withdraw the rejections of claims 3-5, 8, 9, 12 and 13.

In the Office Action, the Examiner rejected claims 21-23, 26-29, 31 and 32 under 35 U.S.C. §103(a) as being unpatentable over Hottinen (U.S. Patent Application Publication No. 2002/0105961) in view of Farley et al. (U.S. Patent Application Publication No. 2002/0101839).

Applicants' claim 21, as currently amended, recites a radio communication system including a transceiver/transmitter, and at least two transceiver/receivers. The transceiver/transmitter transmits data in a first time slot. Each of the transceiver/receivers is configured to return a first acknowledgement state in a second time slot, after the first time slot, is configured to return a second acknowledgement state in a third time slot, after the second time slot, and is configured to return a collision acknowledgement in a fourth time slot.

Applicants' claim 26, as currently amended, recites a transceiver/receiver for use in a radio communications system including at least one transceiver/transmitter. The transceiver/receiver, upon receiving a data packet in a first time slot from the transceiver/transmitter, is configured to transmit a first acknowledgement state in a second time slot, after the first time slot, is configured to transmit a second acknowledgement state in a third time slot, after the second time slot, and is configured to transmit a collision acknowledgement state in a fourth time slot, after the third time slot.

Applicants' claim 31, as currently amended, recites a transceiver/transmitter for use in a communications system including at least one other transceiver/receiver. The transceiver/transmitter transmits a data packet in a first time slot to the at least one transceiver/receiver, and is configured to receive a first acknowledgement state in a second time slot after the first time slot from one or more of the transceivers/receivers, is configured to receive a second acknowledgement state in a third time slot after the second time slot from one or more of the transceiver/receivers, and is configured to receive a collision acknowledgement state in a fourth time slot after the third time slot, from one or more of the transceiver/receivers.

Farley et al. discloses a wireless communication system in which subscriber units transmit selected messages over a shared reverse link channel. See, e.g., paragraph [0004] of Farley et al. A single ACK/NAK bit of a time slot of the shared channel can indicate an "acknowledgement" or a "no acknowledgement" message. See, e.g., paragraph [0005] of Farley et al. Farley et al. also discloses that the shared reverse link channel can include multiple acknowledgement messages, which are generated at different network layers. See, e.g., paragraph [0008] of Farley et al.

Applicants respectfully submit that Farley et al. does not disclose or suggest that the subscriber units are configured to return a collision acknowledgement in a time slot following time slots of the multiple acknowledgement messages. Applicants submit that Hottinen et al. also fails to suggest this feature, as Hottinen et al. merely discloses a transmit diversity system in which multiplexed feedback signals can be used to represent a state of a channel, where the multiplexed feedback signals may include first and second

feedback signals which are transmitted in different time slots. See, e.g., paragraphs [0040] and [0045] of Hottinen et al.

Thus, Applicants respectfully submit that the combined teachings of Hottinen et al. and Farley et al. fail to disclose or suggest a radio communication system including at least two transceiver/receivers, each of which is configured to return a first acknowledgement state in a second time slot, after a first time slot, is configured to return a second acknowledgement state in a third time slot, after the second time slot, and is configured to return a collision acknowledgement in a fourth time slot, as recited in Applicants' amended claim 21.

Applicants submit that the combined teachings of Hottinen et al. and Farley et al. also fail to disclose or suggest a transceiver/receiver which, upon receiving a data packet in a first time slot from a transceiver/transmitter, is configured to transmit a first acknowledgement state in a second time slot, after a first time slot, is configured to transmit a second acknowledgement state in a third time slot, after the second time slot, and is configured to transmit a collision acknowledgement state in a fourth time slot, after the third time slot, as recited in Applicants' amended claim 26.

Applicants further submit that the combined teachings of Hottinen et al. and Farley et al. fail to disclose or suggest a transceiver/transmitter which transmits a data packet in a first time slot to at least one transceiver/receiver, and is configured to receive a first acknowledgement state in a second time slot after the first time slot from one or more of the transceivers/receivers, is configured to receive a second acknowledgement state in a third time slot after the second time slot from one or more of the transceiver/receivers, and is configured to receive a collision acknowledgement state in a

fourth time slot after the third time slot, from one or more of the transceiver/receivers, as recited in Applicants' amended claim 31.

For at least these reasons, Applicants submit that the inventions recited in Applicants' independent claims 21, 26 and 31 are not obvious in view of Hottinen et al. and Farley et al., and request that the Examiner withdraw the rejections of claims 21-23, 26-29, 31 and 32.

In the Office Action, the Examiner rejected claim 24 under 35 U.S.C. §103(a) as being unpatentable over Hottinen et al. in view of Farley et al. and Dail et al. (U.S. Patent No. 5,570,355), and rejected claim 30 under 35 U.S.C. §103(a) as being unpatentable over Hottinen et al. in view of Farley et al. and Makinen (U.S. Patent No. 6,804,533).

Applicants respectfully submit that Dail et al. and Makinen fail to overcome the above-noted deficiencies of Hottinen et al. and Farley et al. Accordingly, Applicants request that the Examiner withdraw the rejections of claims 24 and 30, in view of their dependency from claims 21 and 26.

In the Office Action, the Examiner rejected claim 42 under 35 U.S.C. §103(a) as being unpatentable over LoGalbo et al. (U.S. Patent Application Publication No. 2002/0093928) in view of Mollenkopf et al. (U.S. Patent Application Publication No. 2003/0169155) and Kramer (U.S. Patent Application Publication No. 2003/0161316), and rejected claim 46 under 35 U.S.C. §103(a) as being unpatentable over LoGalbo et al. in view of Mollenkopf et al., Kramer and Nelson et al.

Applicants' claim 42, as currently amended, recites a radio communication system including a first transceiver and a second transceiver. The first and second transceivers are configured to transmit a positive acknowledge in a first of three sub-time

slots of a fourth time slot, are configured to transmit a negative acknowledge in a second of the three sub-time slots of the fourth time slot, and are configured to transmit a collision indication in a third of the three sub-time slots of the fourth time slot.

Applicants' claim 46, as currently amended, recites a repeater for use in a radio communication system including at least two transceivers. The at least two transceivers are configured to transmit a positive acknowledge in a first of three sub-time slots of a fourth time slot, and are configured to transmit a negative acknowledge in a second of the three sub-time slots of the fourth time slot. The repeater is configured to transmit a collision acknowledge in a third of the three sub-time slots of the fourth time slot, if a collision has occurred between two or more transmissions.

LoGalbo et al. discloses a repeater which receives a first block of data from a first device, determines if the first block of data requires acknowledgement, and if the first block of data, forms and transmits a time slot including a second block of data targeted for a second device and indicia of acknowledgement of the first block of data. See, e.g., paragraph [0026] of LoGalbo et al.

Applicants respectfully submit that LoGalbo et al. fails to disclose or suggest transmitting a positive acknowledge in a first of three sub-time slots of a fourth time slot, transmitting a negative acknowledge in a second of the three sub-time slots of the fourth time slot, and transmitting a collision indication in a third of the three sub-time slots of the fourth time slot. Applicants submit that Mollenkopf et al., Kramer and Nelson et al. also fail to suggest these features.

Thus, Applicants respectfully submit that the combined teachings of LoGalbo et al., Mollenkopf et al. and Kramer fail to disclose or suggest a radio communication

system including a first transceiver and a second transceiver, where the first and second transceivers are configured to transmit a positive acknowledge in a first of three sub-time slots of a fourth time slot, are configured to transmit a negative acknowledge in a second of the three sub-time slots of the fourth time slot, and are configured to transmit a collision indication in a third of the three sub-time slots of the fourth time slot, as recited in Applicants' amended claim 42.

Applicants also submit that the combined teachings of LoGalbo et al., Mollenkopf et al., Kramer and Nelson et al. fail to disclose or suggest a repeater for use in a radio communication system including at least two transceivers, where the at least two transceivers are configured to transmit a positive acknowledge in a first of three sub-time slots of a fourth time slot, and are configured to transmit a negative acknowledge in a second of the three sub-time slots of the fourth time slot, and the repeater is configured to transmit a collision acknowledge in a third of the three sub-time slots of the fourth time slot, if a collision has occurred between two or more transmissions, as recited in Applicants' amended claim 46.

For at least these reasons, Applicants submit that the inventions recited in Applicants' claims 42 and 46 are not obvious in view of LoGalbo et al., Mollenkopf et al. and Kramer, and request that the Examiner withdraw the rejections of claims 42 and 46.

In the Office Action, the Examiner rejects claim 47 under 35 U.S.C. §103(a) as being unpatentable over LoGalbo et al. in view of Mollenkopf et al. and Souissi (U.S. Patent Application Publication No. 2002/0075891). Applicants respectfully traverse the rejection for at least the following reasons.

Applicants' claim 47 recites a transceiver for use in a radio communication system including at least one other transceiver and a repeater. Upon receiving a repeat flag from the repeater, in a second time slot, the transceiver suspends further action until the transceiver receives from the repeater, in a third time slot, data that was originally transmitted by the at least one other transceiver in a first time slot.

In the Office Action, the Examiner acknowledges that LoGalbo et al. and Mollenkopf et al. do not teach a transceiver which, upon receiving a repeat flag from a repeater, in a second time slot, suspends further action until the transceiver receives from the repeater, in a third time slot, data that was originally transmitted by at least one other transceiver in a first time slot. However, the Examiner asserts that this feature is taught by Souissi. Applicants respectfully disagree.

Applicants respectfully submit that Souissi does not even disclose a transceiver that receives a repeat flag from a repeater. Rather, Souissi merely discloses that redundant or repeat transmission and acknowledgements are needed after a collision. See paragraph [0031] of Souissi.

Thus, Applicants respectfully submit that the combined teachings of LoGalbo et al., Mollenkopf et al. and Souissi fail to disclose or suggest a transceiver for use in a radio communication system including at least one other transceiver and a repeater, where upon receiving a repeat flag from the repeater, in a second time slot, the transceiver suspends further action until the transceiver receives from the repeater, in a third time slot, data that was originally transmitted by the at least one other transceiver in a first time slot, as recited in Applicants' claim 47.

For at least these reasons, Applicants submit that the invention recited in Applicants' claim 47 is not obvious in view of LoGalbo et al., Mollenkopf et al. and Souissi, and request that the Examiner withdraw the rejection of claim 47.

In the Office Action, the Examiner rejected claim 48 under 35 U.S.C. §103(a) as being unpatentable over LoGalbo et al. in view of Mollenkopf et al., Souissi, Watanabe (U.S. Patent No. 6,317,854) and Kramer et al. Applicants respectfully submit that Watanabe and Kramer et al. fail to overcome the above-noted deficiencies of LoGalbo et al., Mollenkopf et al. and Souissi. Accordingly, Applicants request that the Examiner withdraw the rejection of claim 48, in view of its dependency from claim 47.

In the Office Action, the Examiner rejects claim 51 under 35 U.S.C. §103(a) as being unpatentable over LoGalbo et al. in view of Mollenkopf et al. and Allen et al. (U.S. Patent No. 5,563,728). Applicants respectfully traverse the rejection for at least the following reasons.

Applicants' claim 51 recites a radio communication system including at least a first transceiver, a second transceiver and a repeater. Upon receipt of a data transmission from the first transceiver, the repeater re-transmits the data transmission from the first transceiver. Upon receipt of a data transmission from the second transceiver before the repeater retransmits the data transmission from the first transceiver, the repeater transmits a data sequence instructing each transceiver to ignore the transmission in progress.

In the Office Action, the Examiner acknowledges that LoGalbo et al. and Mollenkopf et al. do not teach a repeater which, upon receipt of a data transmission from a second transceiver before the repeater retransmits a data transmission from a first transceiver, transmits a data sequence instructing each transceiver to ignore the

transmission in progress. However, the Examiner asserts that this feature is taught by Allen et al. Applicants respectfully disagree.

Allen et al. discloses that D-sync prefix D-sync packet communication between repeaters are ignored by nodes 76, 78 and 80. However, Allen does not disclose that this communication is transmitted upon receipt of a data transmission from a second transceiver before retransmission of a data transmission from a first transceiver.

Thus, Applicants respectfully submit that the combined teachings of LoGalbo et al., Mollenkopf et al. and Allen et al. fails to disclose or suggest a radio communication system including at least a first transceiver, a second transceiver and a repeater, where upon receipt of a data transmission from the first transceiver, the repeater re-transmits the data transmission from the first transceiver, and upon receipt of a data transmission from the second transceiver before the repeater retransmits the data transmission from the first transceiver, the repeater transmits a data sequence instructing each transceiver to ignore the transmission in progress, as recited in Applicants' claim 51.

For at least these reasons, Applicants submit that the invention recited in Applicants' claim 51 is not obvious in view of LoGalbo et al., Mollenkopf et al. and Allen et al., and request that the Examiner withdraw the rejection of claim 51.

In the Office Action, the Examiner rejects claims 52 and 53 under 35 U.S.C. §103(a) as being unpatentable over LoGalbo et al. in view of Mollenkopf et al., Allen et al. and Parsa. Applicants respectfully submit that Parsa fails to overcome the above-noted deficiencies of LoGalbo et al., Mollenkopf et al. and Allen et al. Accordingly, Applicants request that the Examiner withdraw the rejections of claims 52 and 53, in view of their dependency from claim 51.

In the Office Action, the Examiner objected to claims 7, 11, 25, 33, 35-41, 43-45, 49, 50 and 54-60 as being dependent upon a rejected base claim, but indicated that these claims would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. Applicants wish to thank the Examiner for indicating that these claims include allowable subject matter. However, Applicants respectfully submit that claims 7, 11, 25, 33, 45, 49, 50 and 54-60 are allowable in their present form, in view of their dependency from claims 3, 8, 21, 31, 42, 47 and 51.

Applicants have cancelled claims 1, 2, 6, 10, 14-20, 34-41, 43 and 44 merely to advance prosecution of the present application to issue. Accordingly, the cancellation of these claims should not be taken as an acquiescence to the propriety of the rejections.

Based on the above, it is respectfully submitted that this application is in condition for allowance, and a Notice of Allowance is respectfully requested.

SUMMARY AND CONCLUSION


Reconsideration of the outstanding Office Action, and allowance of the present application and all of the claims therein are respectfully requested and believed to be appropriate. Applicants have made a sincere effort to place the present invention in condition for allowance and believe that they have done so.

Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should an extension of time be necessary to maintain the pendency of this application, including any extensions of time required to place the application in condition for allowance by an Examiner's Amendment, the Commissioner is hereby authorized to charge any additional fee to Deposit Account No. 19-0089.

Should the Examiner have any questions or comments regarding this response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully Submitted,
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